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CLEANING CONTAINER WITH MAGNETIC REMOVAL

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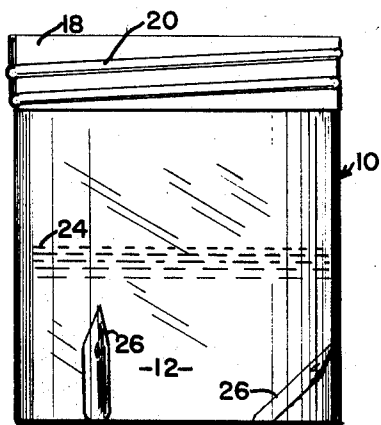


FIG. 1

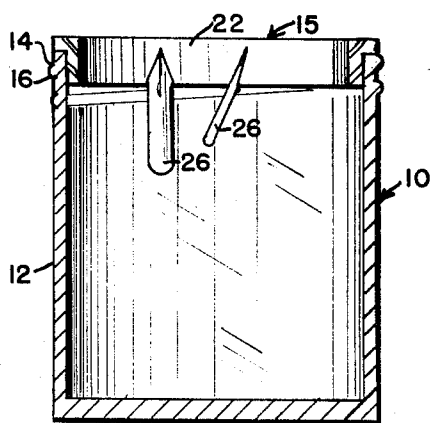


FIG. 2

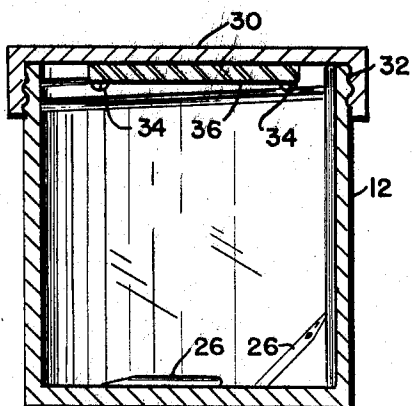


FIG. 3

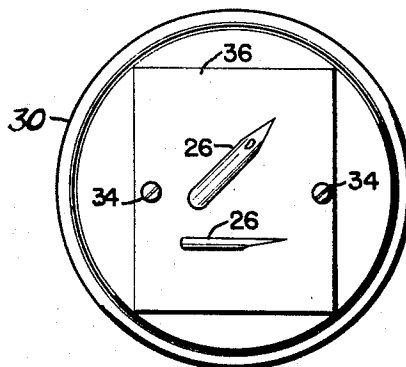


FIG. 4

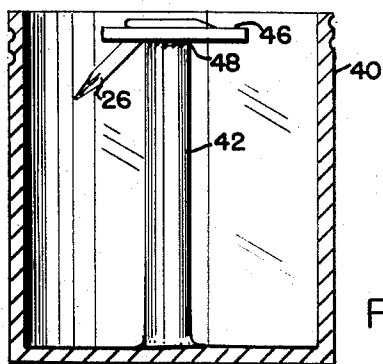


FIG. 5

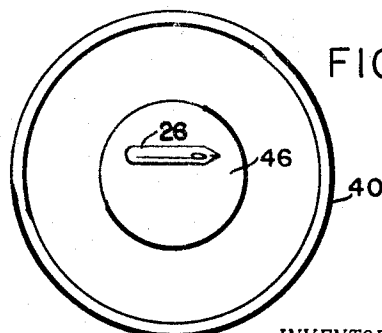


FIG. 6

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CLEANING CONTAINER WITH MAGNETIC REMOVAL

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8 Claims. (Cl. 134—133)

This invention relates to a cleaning container with magnetic removal and particularly to a container of a sort which is used for treating metal objects by soaking in a compound and having an arrangement for magnetically removing the metal objects.

In cleaning dirty deposits from metal objects, such as ink from drafting pens or deposits from machinery parts, it is often necessary that the metal object be soaked or agitated in a bath of some special chemical fluid. Where there are a number of small parts in the same container of fluid, it is difficult to remove them without pouring out the entire contents. This is a messy sort of operation and usually results in a loss of most of the fluid as well as the expenditure of a great deal of time. In view of this there is obviously a need for a container which, after cleaning, provides a simple separation of the metal objects from the fluid so that the objects may be readily removed with the hand.

It is an object of this invention to provide a cleaning container with a means for separating metal objects from a treating compound.

A further object of this invention is to provide a cleaning container with a magnet positioned inside thereof in such a manner as to attract metal objects from a fluid bath on certain positioning of the container.

Generally described, the present invention comprises a container having an opening formed therein, a closure member movably positioned on said opening forming a fluid tight seal, and a magnet positioned within said container so that tilting the container moves the metal objects in the cleaning compound from a position out of the field of attraction into attachment with the magnet whereby upon returning said container to normal position the compound drains from the objects and the objects may be removed through the opening.

Other and further objects and advantages of my invention will be apparent from the ensuing description taken in conjunction with the accompanying drawings in which:

Fig. 1 is a side elevation view of a preferred container in normal upright position.

Fig. 2 is a view in central vertical section of the container in Fig. 1 with the closure lid removed.

Fig. 3 is a view in central vertical section of the first modification of the container in Fig. 1.

Fig. 4 is a bottom plan view of the closure lid of the device in Fig. 3.

Fig. 5 is a view in vertical section of another modified form of the invention of Fig. 1.

Fig. 6 is a top plan view of the device in Fig. 5.

Beginning with the invention shown in Figs. 1 and 2, a container, designated generally by 10, comprises a body portion 12 which is in the form of a cylindrical jar, shown here as made from glass with the bottom formed integrally with the sides but which may be made from other materials and in separate parts, with an open top neck 14 having entrance 15 and being formed with wide threads 16 thereon. The threaded neck 14 receives a closure lid or cap 18 with threads 20 complementary to those 16 on the neck 14 so that the cap 18 may be tightened into the upper rim of the neck 14 making a fluid tight closure. As is readily seen in Fig. 2, the rim of neck 14 supports a magnetic ring 22 of inverted L-shaped cross section positioned on the rim somewhat in the manner of a gasket or rubber washer. Ring 22 is made of suitable material

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to be permanently magnetized prior to installation providing a substantially strong magnetic field immediately adjacent the surface thereof but with substantially no attraction as far away as the center of jar body 12. If desired, the ring 22 may be glued or otherwise secured to the inner periphery of the neck 14 but it is not necessary since the cap 18 through the co-action of threads 16, 20 tightens the ring 22 on the rim of neck 14 forming a fluid tight container with the magnetic surface 22 confined therein.

In the operation of my novel container, the cleaning operation takes place with the container in normal upright position so that a chemical cleaning fluid 24 contained in the bottom of the jar 12 receives a number of small metallic objects, such as the pen points 26. The container 10 may be placed on a flat surface in upright position (with the top 18 up) or rotated slightly to agitate pen points 26 in the fluid 24 thereby transferring the deposits on the pen points 26 to the fluid 24. When it is desired to remove the points 26, the container 10 is completely inverted so that the fluid 24 and points 26 collect at the inside of neck 14 which places the pen points 26 in contact with or within the pull of the magnetic ring 22. Upon returning the container 10 to its normal position, the fluid 24 will return to its normal position in the bottom of the container 10 but the points 26 will remain at the top attached to the ring 22. Since the fluid is normally below the opening 22, the lid 20 is removed and points 26 taken out by hand from the position shown in Fig. 2. Substantially all the fluid 24 has dripped into the bottom and the points 26 are clean and almost dry.

In the modified form of Figs. 3 and 4, the jar body 12 remains exactly the same and the lid has been replaced by a lid of different construction designated at 30 with screw threads 32. Lid 30 has attached by screws 34 to the underside thereof a flat, permanent magnet 36 providing a magnetic surface and field of attraction in the vicinity of the inside, upper portion of jar 12. The operation of this container is the same as in the previous embodiment except that once the metal objects 26 become attached to the magnet 36, as in the manner shown in Fig. 4, they are removed with the lid 30.

The modification shown in Figs. 5 and 6 comprises a jar 40 formed from glass, or a like substance, with an integral, vertical support column 42 substantially in the inside of the center thereof which column 42 supports on the upper terminal end thereof a flat, permanent magnet 46 glued at 48 or otherwise permanently held in position. The open top jar 40 may be provided with an ordinary screw type closure lid such as 18 in Fig. 1. Inversion of jar 40 with a liquid confined therein having immersed metal objects will, as in the prior embodiments, cause said objects 26 to become attached to the magnet 46 so that upon reversion of the jar 40 the liquid has drained off and the objects may be readily removed.

With the foregoing arrangements, the loss of fluid in removing the cleaned objects is slight and the entire removal operation is fast and neat. Furthermore, where strong chemicals are being used there is less possibility of getting the solution on the person or clothing. Also, no separate containers or any other apparatus is needed other than that forming a part of each container of this invention.

It is at once obvious that many types of containers may be used in place of the jar herein illustrated and that a number of different closure devices (lids, caps, etc.) may replace the screw. Therefore, it is emphasized that many substitutions, eliminations, variations, and modifications may be made in the forms shown and described without departing from the scope of my invention reference being had to the following claims for such considerations.

I claim:

1. In a container of the class described, a body portion having a closed bottom and having an opening therein for the insertion and removal of metal objects, said opening being positioned above the level of a fluid contained in said body in at least one position of said container, a closure member selectively movable on said body portion to close said opening forming a fluid tight container, and magnetic means normally within said container when said closure is in place for holding said metal objects adjacent said opening while said fluid drains therefrom back into said container, said objects being attracted to said magnetic means upon inversion of said container, and said magnetic means being above the level of said fluid in at least one object removal position of said container to permit opening of said closure and removal of said objects through said opening whereby said objects may be readily removed from said fluid after cleaning without removing or spilling the fluid from the container.

2. In a container of the class described, a body having a closed bottom and having an opening therein for the insertion and removal of metal articles, said opening being positioned above the level of a fluid contained in said body in at least one position of said container, a closure member selectively movable on said body portion to close said opening forming a fluid tight container, and magnetic means within said container when said container is closed and normally not affecting articles therein, said magnetic means being selectively operable to attract said metal articles upon inversion of said container and hold same free above the level of said fluid upon re-positioning of said container, and when said closure is removed to expose said objects on said magnetic means for open access to and removal from said magnetic means while said closure opening is open, said open closure having exposed said objects held on said magnetic means for removal of same from said magnetic means so that they may be removed from the container without removing or spilling the fluid.

3. In a cleaning container of the class described, a container body having an opening therein through which articles are inserted for cleaning, said opening being above the level of a fluid in said body in at least one position of the container, a movable closure member forming a fluid tight seal about said opening for confining a liquid in said container when said closure is in sealing position and normally out of contact with the liquid, and magnetic means normally in said container normally out of effective range of said fluid in one cleaning position but being brought into contact with said fluid upon tilting said closed container to attract and hold the metal objects thereto, and said objects being exposed when said container is restored to normal closure opening position, said objects being removable from said magnetic means to which they cling while said closure opening is open, said open closure opening having exposed said objects for removal from said magnetic means, whereby the objects may be readily removed through said closure without pouring or spilling the fluid therefrom.

4. In a cleaning container of the class described, a container body having an opening therein through which articles are inserted for cleaning, said opening being above the level of a fluid in said body in at least one position of the container, a movable closure member forming a fluid tight seal about said opening for confining a liquid in said container, a permanent magnet positioned in said container when said closure is in sealing position and normally out of effective range of said fluid when said container is in normal upright position but being brought into contact with said fluid upon tilting of said closed container so that metal objects in said fluid cling to said magnet, said objects remaining attached to said magnet upon returning said container to normal

position with said fluid draining from the objects, whereby the objects cleaned in said fluid may be readily removed therefrom through the separation of fluid and objects at said magnet.

5. In a cleaning container of the class described, a container body having an opening therein through which articles are inserted for cleaning, a portion of said container body spaced from said opening being defined as a fluid containment area with cleaning fluid at its normal gravity level having metal objects immersed therein, a movable closure member forming a fluid tight container by sealing said opening, and a permanent magnet positioned within said container when closed and with the magnetic field thereof effective within said container in at least one inverted position thereof to attract and hold metal objects adjacent the inner area of said opening when said closure is in position, said magnet being ineffective to attract metal objects immersed in said fluid when said container is in normal upright position but effective to hold said objects brought into the field thereof by inversion of said container from normal position, said magnet being above the level of said fluid in at least one object removal position where the objects attach themselves removably to the magnet, and said objects being exposed for removal through said opening when the container is restored to normal position and the closure is removed, whereby said metal objects may be removed by tilting said container to bring said fluid out of its normal gravity level confinement into effective range of said magnetic field to be held for removal after said container has been restored to normal position and said fluid has returned to its normal position away from the closure.

6. The device of claim 5 wherein said magnet is secured to said closure member.

7. The device of claim 5 wherein said magnet is in the form of an open member positioned about the periphery of said opening in the container.

8. In a cleaning container of the class described, a container body having a closed bottom and having an opening formed therein through which articles are inserted for cleaning, a portion of said body around said bottom being defined as a fluid containment area with cleaning fluid having immersed metal objects therein, a movable closure member forming a fluid tight container by sealing said opening for selective removal therefrom, a support member fixed on said body and protruding into the inside thereof, and a permanent magnet supported by said support member with the field of magnetic attraction effective adjacent said closure member but ineffective at the location of the metal objects in their normal position in the fluid, said container being shiftable to several positions in which the fluid leaves its normal position to bring the metal objects within the magnetic attraction of said magnet whereupon with the objects attached to said magnet the container is shiftable back to normal position, said magnet being above the fluid level in at least one object removal position, and said objects on said magnet being exposed and accessible through said opening when said closure is removed, the result of all of which is the separation of the metal objects from the fluid without removing or spilling the fluid from the container and the holding of the metal objects in the vicinity of the opening so that they are readily removed from the container.

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